

## Little-known and synonymous antlions (Neuroptera, Myrmeleontidae)

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**Abstract.** – The authors examined antlion types in several collections and, as a result, numerous synonymous names were detected. *Palpares infimus* (Walker, 1853), n. syn. of *Palpares zebratus* Rambur, 1842; *Palpares nobilis* Navás, 1931, n. syn. of *Palpares zebratus* Rambur, 1842; *Palpares schrammi* Navás, 1914, n. syn. of *Palpares amitinus* Kolbe, 1906; *Palpares decaryi* Navás, 1924, n. syn. of *Palpares amitinus* Kolbe, 1906; *Palpares bayoni* Navás, 1915, n. syn. of *Palpares digitatus* Gerstaecker, 1894; *Palpares sinicus* Yang, 1986, n. syn. of *Lachlathetes contrarius* (Walker, 1853); *Echthromyrmex sehiltlerolmez* Koçak & Kemal, 2008, n. syn. of *Echthromyrmex platypterus* McLachlan, 1867; *Acanthaclisis curvispura* Krivokhatsky, 1990, n. syn. of *Acanthaclisis mesopotamica* Hölzel, 1972; *Synclisis cryptica* Fraser, 1955, n. syn. of *Syngenes alluaudi* (Weele, 1909); *Heoclisia sinensis* Navás, 1923, n. syn. of *Synclisis japonica* (Hagen, 1866); *Centroclisis terribilis* Prost, 1998, n. syn. of *Centroclisis cervina* (Gerstaecker, 1863); *Iranoleon electus* Hölzel, 1968, n. syn. of *Iranoleon afghanus* (Kimmins, 1950); *Aspoeckiana venusta* Hölzel, 1970, n. syn. of *Aspoeckiana vaillanti* (Navás, 1920); *Nohoveus vanharteri* Ábrahám, 2012, n. syn. of *Nohoveus implexus* (Walker, 1853); *Cueta sauteri* (Esben-Petersen, 1913), n. syn. of *Cueta kurzi* (Navás, 1912); *Cueta lunata* (Navás, 1912), n. syn. of *Myrmeleon alcestris* Banks, 1911. *Myrmecaelurus vaillanti* Navás, 1920 is moved to a new combination, *Aspoeckiana vaillanti* (Navás, 1920), n. comb. Sixteen photographs of type specimens are presented.

**Résumé.** – *Espèces peu connues et nouveaux synonymes pour des Fourmilions (Neuroptera, Myrmeleontidae).*

Les types de fourmilions ont été examinés dans plusieurs collections, et de nombreuses synonymies ont été mises en évidence. *Palpares infimus* (Walker, 1853), n. syn. de *Palpares zebratus* Rambur, 1842 ; *Palpares nobilis* Navás, 1931, n. syn. de *Palpares zebratus* Rambur, 1842 ; *Palpares schrammi* Navás, 1914, n. syn. de *Palpares amitinus* Kolbe, 1906 ; *Palpares decaryi* Navás, 1924, n. syn. de *Palpares amitinus* Kolbe, 1906 ; *Palpares bayoni* Navás, 1915, n. syn. de *Palpares digitatus* Gerstaecker, 1894 ; *Palpares sinicus* Yang, 1986, n. syn. de *Lachlathetes contrarius* (Walker, 1853) ; *Echthromyrmex sehiltlerolmez* Koçak & Kemal, 2008, n. syn. de *Echthromyrmex platypterus* McLachlan, 1867 ; *Acanthaclisis curvispura* Krivokhatsky, 1990, n. syn. de *Acanthaclisis mesopotamica* Hölzel, 1972 ; *Synclisis cryptica* Fraser, 1955, n. syn. de *Syngenes alluaudi* (Weele, 1909) ; *Heoclisia sinensis* Navás, 1923, n. syn. de *Synclisis japonica* (Hagen, 1866) ; *Centroclisis terribilis* Prost, 1998, n. syn. de *Centroclisis cervina* (Gerstaecker, 1863) ; *Iranoleon electus* Hölzel, 1968, n. syn. de *Iranoleon afghanus* (Kimmins, 1950) ; *Aspoeckiana venusta* Hölzel, 1970, n. syn. de *Aspoeckiana vaillanti* (Navás, 1920) ; *Nohoveus vanharteri* Ábrahám, 2012, n. syn. de *Nohoveus implexus* (Walker, 1853) ; *Cueta sauteri* (Esben-Petersen, 1913), n. syn. de *Cueta kurzi* (Navás, 1912) ; *Cueta lunata* (Navás, 1912), n. syn. de *Myrmeleon alcestris* Banks, 1911. Une nouvelle combinaison est proposée pour *Myrmecaelurus vaillanti* Navás, 1920 : *Aspoeckiana vaillanti* (Navás, 1920), n. comb. Seize photographies de spécimens-types sont présentées.

**Keywords.** – Taxonomy, nomenclature, valid species, new synonyms, lectotype designations.

During the description of taxa, authors use information from the literature to compare and diagnose their new taxon. Despite the greatest care, synonyms do occur that are subsequently invalidated by the rules of the International Code of Zoological Nomenclature (ICZN, 1999). Authors have frequently described widespread taxa under several names from various parts of their distribution. Synonyms are usually revealed during taxonomic revisions. The development of taxonomy has been accelerated by modern techniques, including digitized collections, databases, illustrations, and more efficient transmission of information through online publications.

In the xviii<sup>th</sup> century, the first descriptions were usually brief without any illustration but they contained sufficient information to distinguish each taxon at that time. By the xix<sup>th</sup> century,

descriptions had become more detailed. Illustrations, through enhanced preparation and printing technology, developed rapidly during the xx<sup>th</sup> century. Taxa are now further differentiated by additional techniques, including genetics, behaviour and ecology.

STANGE (2004) listed more than 1500 Myrmeleontidae in his systematic catalogue, and placed 48 genera and 58 species in synonymy and 250 taxa into new combinations.

The European fauna is the best-known, while many species-rich local faunas are very poorly known or knowledge of the fauna is inaccurate due to the lack of comparative collections and properly trained local experts, and inadequate original descriptions. The absence of annotated checklists or identifying papers and books often are serious impediments in these countries.

This paper serves to rectify a number of taxonomic inaccuracies encountered during a study of Myrmeleontidae in the museums listed in the next part of the paper.

### MATERIAL AND METHODS

We examined and compared type specimens and non-type material collected near type localities. In many cases, a lectotype was designated. In all cases, the new taxonomic and nomenclatural findings were labeled to identify these types. Material from the following collections was examined: Muséum national d'Histoire naturelle, Paris, France (MNHN); China Agricultural University, Beijing, China (CAUB); Copenhagen University, Zoological Museum, Copenhagen, Denmark (ZMC); Rippl-Rónai Museum, Kaposvár (SCM); Zoologische Staatssammlung, München, Germany (ZSM); Museo de Zoología, Barcelona, Spain (MZBS).

The following institutions provided photographs: Museo Civico di Storia Naturale Giacomo Doria, Genova, Italy (MCSND); Nationaal Natuurhistorische Museum Naturalis, Leiden, The Netherlands (RMNH); The Natural History Museum, London, United Kingdom (BMNH); Museo Nacional de Ciencias Naturales, Madrid, Spain (MNCN).

Habitus photographs were taken using various digital cameras; the photographs were processed with CombineZP®, and enhanced with Adobe Photoshop® software. For the morphological investigations, various microscopes equipped with digital cameras were used and, when necessary, genital examinations were carried out.

We divided the type material into six categories based on type condition defined as follows.

– *excellent*: the type is in perfect condition (all morphological features are present: head with antenna, thorax with wings and legs, abdomen with tip, the specimen not glued). Labels complete.

– *good*: the most critical morphological features are present (head, thorax, wings, legs, abdomen but some of them are glued and/or pinned to the type). Labels complete.

– *medium*: the type specimen is damaged, lacking some critical morphological features and/or some damage is present. Labels complete.

– *poor*: the type is severely damaged by *Anthrenus* (or others) and/or mould covers the whole insect. Most of the significant morphological attributes that characterize the taxon are absent, especially the abdomen, which makes it impossible to determine the sex. Labels are incomplete and or not original.

– *bad*: only few morphological parts remain (*e.g.* wings or only thorax or/and only labels) and the specimen is not labeled as the type.

– *no type*: type lost and/or has suffered such damage that it is impossible to identify and neotype designation is necessary.

**Abbreviations.** – Chlist, Checklist; Comb, New combination; Com, Comment; Dist, Distribution; Hom, Homonym; Mon, Monograph; Morph, Morphology; Odescr, Original description; Syn, Synonym.

## RESULTS AND DISCUSSION

Family **Myrmeleontidae** Latreille, 1802Subfamily **Palparinae** Banks, 1911Tribe **Palparini** Banks, 1911***Palpares zebratus*** Rambur, 1842 (fig. 1)*Palpares zebratus* Rambur, 1842: 371 (Odescr). HAGEN, 1866; McLACHLAN, 1867; McLACHLAN, 1873 (List); BANKS, 1913 (Mon); WHITTINGTON, 2002 (Dist); STANGE, 2004 (Mon).*Myrmeleon zebratus* (Rambur). WALKER, 1853 (Mon, Comb); HAGEN, 1860 (Chlist).Syn. *Myrmeleon infimus* Walker, 1853: 307 (Odescr), **n. syn.***Palpares infimus* (Walker). HAGEN, 1860 (List, Comb); HAGEN, 1866; McLACHLAN, 1867; NEEDHAM, 1909 (Dist); BANKS, 1913 (List); GHOSH, 1984 (Mon); GHOSH & SEN, 1977 (Chlist); STANGE, 2004 (Mon).Syn. *Myrmeleon patiens* Walker, 1853: 305 (Odescr).*Palpares patiens* (Walker). HAGEN, 1860 (Comb); McLACHLAN, 1867 (Syn); NAVÁS, 1912c (Dist); NAVÁS, 1932b (Dist); BANKS, 1913 (Syn); GHOSH, 1984 (Mon); GHOSH & SEN, 1977 (Chlist).Syn. *Palpares nobilis* Navás, 1931: 77 (Odescr), **n. syn.** GHOSH & SEN, 1977 (Chlist).**Type of *P. zebratus*** (fig. 1). – “Collection du Musée et indiqué de Pondichéry. Je ne connais pas le mâle.”**LECTOTYPE (present designation):** ♀, Pondichéry [India, Tamil Nadu, Puducherry or Pondicherry] checked, preserved in MNHN. “Lectotype / *Palpares zebratus* / Rambur, 1842 / design.: Ábrahám & Giacomino / 2014 [red label in Giacomino’s handwriting]”.**Label information.** White label with printed capital red letters: “Type // *Palpares / zebratus* / Ramb. [white label with Rambur’s handwriting] // Pondichery / Leschenault[t] [round shape white label with handwriting] // Museum Paris / Pondichéry / Leschenault [white label with printed letters]”. In RAMBUR (1842) as Pondichéry.**Type condition.** Poor, antenna and abdomen missing, forewings torn, incomplete.**Comment.** It is a morphologically variable valid species. After description, it was mentioned only in monographs or checklists (WALKER, 1853; HAGEN, 1860; McLACHLAN, 1867; STANGE, 2004) without any further taxonomical information.**Type of *P. nobilis*.** – ♀ (fig. 2), preserved in Navás’s private collection but not listed in the remnant collection in MZBS (MONSERRAT, 1985). According to STANGE (2004), the type “Holo-type female, No. India, VI.1930, Benavent (MZBS!)” can be found in MZBS. The deposition of the type has been checked again and we can confirm that the type is preserved in MZBS (reference specimen: 72-4171 MZB).**LECTOTYPE (present designation):** ♀, “Lectotype / *Palpares nobilis* / Navás, 1931 / design.: Ábrahám & Giacomino / 2014 [red label with Giacomino’s handwriting]”.**Label information.** “Typus [red label with Navás’s handwriting] // *Palpares / Nobilis[i]* (sic) Nav. / P. Navás S.J. det. [white label with Navás’s handwriting] // India, NO / Jun. 1930 [white label with Navás’s handwriting]”.

In Navás (1931) “Patria. NO. India, Junio de 1930, H. Benavent, S. J. leg. P. Sala, ded.”.

**Type condition.** Excellent.**Comment.** After examination of the type specimens, *Palpares nobilis* Navás, 1931, is considered as a new junior synonym of *Palpares zebratus* Rambur, 1842.**Type of *M. infimus*.** – ♀, North India. From Mr. Stevens’ collection, BMNH.**Label information.** “Type [round white label with green edge] // Holo- / type [round white label with red edge] // N. India [round shaped white label with handwriting] // *infimus* [white label with handwriting] // *M. infimus* / W. type [white label with handwriting] // BMNH 1201843 [white label]”. In WALKER (1853): “North India”.**Type condition.** Good, antenna missing.

*Comment.* *Palpares infimus* is a new junior synonym of *Palpares zebratus* Rambur, 1842. According to STANGE (2004), four syntypes from North India and North Bengal are in BMNH but a holotype label was incorrectly pinned to one of syntype specimens.

*Palpares patiens* (Walker, 1853) was first synonymized with *Palpares infimus* by McLACHLAN (1867) and later BANKS (1913). The syntypes are preserved in BMNH (STANGE, 2004). NAVÁS (1932b) mentioned it from East Africa (Soomaaliya) which is obviously an incorrect distribution record. Both *Palpares infimus* and *Palpares patiens* are synonyms of *Palpares zebratus*.

**Distribution of *P. zebratus*.** – India and Pakistan.



**Fig. 1-3.** – *Palpares* spp., types. – 1, *P. zebratus* Rambur, 1842, lectotype, ♀. – 2, *P. nobilis* Navás, 1931, lectotype, ♀. – 3, *P. infimus* (Walker, 1853), ♀, type.



***Palpares amitinus* Kolbe, 1906**

*Palpares amitinus* Kolbe, 1906: 140.

Syn. *Palpares schrammi* Navás, 1914a: 100 (Odescr), **n. syn.** PENNY, 2004 (List); STANGE, 2004 (Mon).

Syn. *Palpares decaryi* Navás, 1924: 101 (Odescr), **n. syn.** PENNY, 2004 (List), STANGE, 2004 (Mon).

**Types of *P. schrammi*.** – Male and female (fig. 4) checked, preserved in MNHN. Lectotype male was designated by Legrand but he did not publish the information.

**Label information.** LECTOTYPE (**present designation**): ♂, “Type [white label with capital printed red letters] // Lectotype [red label with capital printed black letters] // *Palpares schrammi* / Navás, 1914 / Lectotype / J. Legrand dét. 1992 [white label with Legrand’s handwriting] // Museum Paris / Madagascar / Prov de Tulear / Bas Fiherena / F. Geay 1906 [green label with printed black letters] // Mission F. Geay / madagascar / n° = 5406 jan. 1906 / bas Fiherena [white notebook paper with handwriting] // *Palpares / schrammi* Nav. / Navás S. J. det. [green label with Navás’s handwriting] // *Palpares amitinus* / Kolbe, 1906 / syn.: Ábrahám & Giacomino / 2014 [white label with Giacomino’s handwriting]”.

PARALECTOTYPE (fig. 4): 1 ♀, “Paralectotype [red label with capital printed black letters] // *Palpares schrammi* / Navás, 1914 / Paralectotype / J. Legrand dét. 1992 [white label with Legrand’s handwriting] // Museum Paris / Madagascar / Prov de Tulear / Bas Fiherena / F. Geay 1906 [green label with printed black letters] // *Palpares / schrammi* Nav. / Navás S. J. det. [green label with Navás’s handwriting] // Mission F. Geay madagasc[ar] / n° = 5406 Janv[er] 1906 / bas Fiherena [white notebook paper with handwriting] // *Palpares / schrammi* Nav. / Navás S. J. det. [green label with Navás’s handwriting]”. In NAVÁS (1914a): Hab. Madagascar. Prov. Tulear [Toliara], Fiherena, F. Geay, 1906 (Mus. Paris.).

**Types condition.** Lectotype: good, antenna missing, abdomen broken but glued. Paralectotype: good, antenna missing, abdomen also broken but glued.

**Comment.** *Palpares schrammi* is a new junior synonym of *Palpares amitinus* Kolbe, 1906. It is a very variable species especially in the pattern of wings. Synonymy is based on the original accurate description (KOLBE, 1906) and additional examined material from Madagascar published by ÁBRAHÁM & DOBOSZ (2011).

**Type of *P. decaryi*** (fig. 5). – LECTOTYPE (**present designation**): ♀, “Lectotype female / *Palpares decaryi* / Navás, 1924 / design.: Ábrahám & Giacomino 2014 [red label with Giacomino’s handwriting]”.

**Label information.** “Type [white label with capital red letters] // Beloha 5. 12 [19]17 [white label with handwriting] // Museum Paris / Madagascar S. / District de Tsihombé / Beloha / Lieut. Decary 1919 [white label with printed letters] // *Palpares / decaryi* ♀ Nav. / P. Navás S. J. det. [green label with Navás’s handwriting] // Holotype [red label with capital black letters] // *Palpares decaryi* / Navás, 1924 / Holotype / J. Legrand dét. 1992 [white label with Legrand’s handwriting]”. In NAVÁS (1924): “Patria: Madagascar S. District de Tsihombé, Beloha, Lieut. Decary 1919. 5. XII”.

Synonymy is marked as white label with Giacomino’s handwriting: “*Palpares amitinus* / Kolbe, 1906 / syn.: Ábrahám & Giacomino 2014”.

**Type condition.** Good, right antenna missing.

**Comment.** *Palpares decaryi* is a new junior synonym of *Palpares amitinus* Kolbe, 1906.

**Distribution of *P. amitinus*.** – Madagascar.

***Palpares digitatus* Gerstaecker, 1894**

*Palpares digitatus* Gerstaecker, 1894: 117

Syn. *Palpares bayoni* Navás, 1915: 20 (Odescr), **n. syn.** STANGE, 2004 (Mon).

**Type of *P. bayoni*.** – Type (fig. 6) checked, preserved in MCSN.

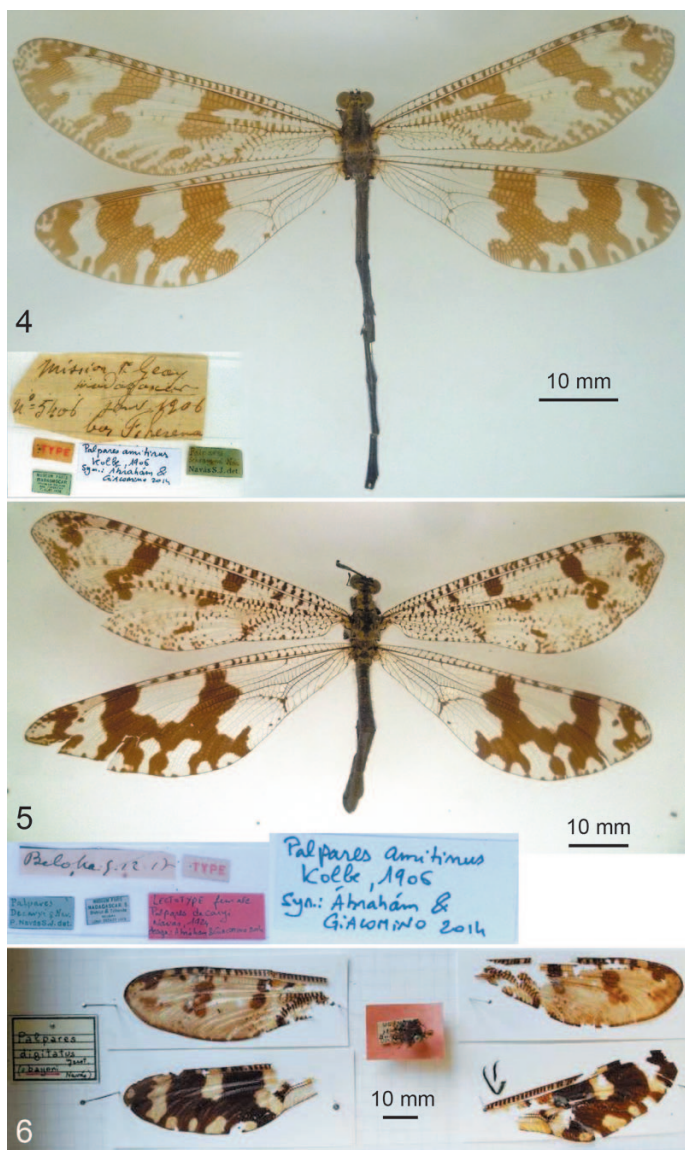
**Label information.** “Uganda: / Mbale Prov./ Bukeddi, III. 1909 / Dr. Bayon [white label] // Type [pink label] // *Palpares / digitatus* / Gerst. / (= *bayoni* [underlined in red] / Navás) [white

label with Insom or Carfi's handwriting]". In NAVÁS (1915): "Patria. Uganda: Mbale, Prov. Bukeddi, III.1909, Dr. Bayon".

*Type condition.* Type is in very bad condition. It is damaged by *Anthrenus*; only wings and legs left, glued on a paper.

*Comment.* It was correctly synonymized by Insom or Carfi (comment in the collection but the new taxonomic status has not been published yet). *Palpares bayoni* Navás, 1915, is a new junior synonym of *Palpares digitatus* Gerstaecker, 1894.

**Distribution of *P. digitatus*.** – Guinea, Ivory Coast, Ghana, Nigeria, Congo, Kenya, Uganda, Somalia, Zambia.



**Fig. 4-6.** – *Palpares* spp., types. – 4, *P. schrammi* Navás, 1914, paralectotype, ♀. – 5, *P. decaryi* Navás, 1924, lectotype, ♀. – 6, *P. bayoni* Navás, 1915.

***Lachlathetes contrarius* (Walker, 1853)**

*Myrmeleon contrarius* Walker, 1853: 453.

Syn. *Palpares falcatus* McLachlan, 1867: 236 (Odescr); BANKS. 1913 (Mon); STITZ. 1912 (Dist), STANGE, 2004 (Mon).

*Symmanthetes falcatus* (McLachlan, 1867) NAVÁS. 1914b (Comb, Dist), 1917 (Dist), 1926 (Dist).

*Lachlathetes falcatus* (McLachlan, 1867) NAVÁS. 1932c (Comb, Dist), 1934 (Dist), KRIVOKHATSKY. 1997 (Syn).

Syn. *Palpares sinicus* Yang, 1986: 423 (Odescr), **n. syn.** STANGE, 2004 (Mon).

**Type of *P. sinicus*.** – Holotype female (fig. 7) checked, preserved in CAUB.

**Label information.** “CAU-N / 100261 [white label] // Holotype / ♂ [white label with red upper band] // 1978-V-18 [white label with Chinese handwriting] // *Palpares / sinicus / Yang*, 1986 / Det. Jikun Yang [white label with Chinese handwriting]”. In YANG (1986): “holotype female, Yunnan Prov., Lancang Lahu Aut. Co., 1978-V-18”.

Synonymy is marked as white label: “*Lachlathetes contrarius* / (Walker, 1853) / det. Abraham L.”.

**Type condition.** Good, antenna missing.

**Comment.** Holotype is a female but it is marked as male on the label. Based on type examination, it is considered as a new junior synonym of *Lachlathetes contrarius* (Walker, 1853).

**Distribution of *L. contrarius*.** – India, Sri Lanka, Myanmar, Thailand, Lao, Cambodia, SE China (Yunnan), Vietnam.

Tribe **Dimarini** Navás, 1914***Echthromyrmex platypterus* McLachlan, 1867**

*Echthromyrmex platypterus* McLachlan, 1867: 244

Syn. *Echthromyrmex sehittlerolmez* Koçak & Kemal, 2008a: 4 (Odescr), **n. syn.** KOÇAK & KEMAL, 2008b (Dist); KEMAL & AYDIN, 2009 (Dist).

**Type of *E. sehittlerolmez*.** – Holotype female preserved in the collection of CESA (Centre for Entomological Studies Ankara (Turkey)). Only a photo of the holotype was seen.

**Label information.** In KOÇAK & KEMAL (2008a): “holotype (female): Turkey: Hakkari Prov., Yüksekova, Dağlica, Yeşiltaş Gorge 1500 m, 27 8 2003, *A. Koçak leg.*”.

**Type condition.** Excellent.

**Comment.** It is a large and very decorative species. KOÇAK & KEMAL (2008a) published a photo of the new species with a good resolution so the taxonomic status could be easily checked. It is a new junior synonym of *Echthromyrmex platypterus* McLachlan, 1867, based on original description.

**Distribution of *E. platypterus*.** – E Turkey, Iran, Iraq, Afghanistan.

Subfamily **Myrmeleontinae** Latreille, 1802Tribe **Acanthaclisini** Navás, 1912***Acanthaclisis mesopotamica* Hölzel, 1972**

*Acanthaclisis mesopotamica* Hölzel, 1972: 13.

*Acanthaclisis debilis* Navás, 1932a (Odescr), KRIVOKHATSKY, 1996 (Hom).

Syn. *Acanthaclisis curvispura* Krivokhatsky, 1990: 61 (Odescr), **n. syn.** KRIVOKHATSKY, 1996 (Nom); ASPÖCK & HÖLZEL, 1996 (List).

**Type of *A. curvispura*.** – Holotype male (fig. 8), ZISP (Russian Academy of Sciences, Zoological Institute, St. Petersburg, Russia). Only a photo of the holotype was seen.

**Label information.** In KRIVOKHATSKY (1990): “Материал. Голотип ♂, Туркмения, Репетек, на вет. 2.08.1983 (Кривохватский)” [= Material. Holotype ♂, Turkmenia, Repetek, на вет. 2.VIII.1983 (Krivokhatsky)].

**Type condition.** Excellent.

*Comment.* *Acanthaclisis curvispura* Krivokhatsky, 1990, replacement name for *Acanthaclisis debilis* Navás, 1932, *nec* Gerstaecker, 1888, is a new junior synonym of *A. mesopotamica* Hölzel, 1972. Synonymy is based on the original accurate description (HÖLZEL, 1972; KRIVOKHATSKY, 1996).

**Distribution of *A. mesopotamica*.** – Kazakhstan, Turkmenistan, Uzbekistan, Iraq, Iran, Pakistan, Saudi Arabia.

***Syngenes alluaudi* (Van der Weele, 1909)**

*Acanthaclisis alluaudi* Van der Weele, 1909: 62.

Syn. *Synclisis cryptica* Fraser, 1955: 134 (Odescr), **n. syn.** STANGE, 2004 (Mon, Hom); ÁBRAHÁM & DOBOSZ, 2011 (Comb).

**Type of *S. cryptica*.** – Male (fig. 9) checked, preserved in MNHN. **LECTOTYPE (present designation):** ♂, “Lectotype male / *Synclisis cryptica* / Fraser, 1955 / design.: Ábrahám & Giacomino 2014 [red label]”.

**Label information.** “Type [red label with capital black letters] // *Synclisis / cryptica* / n. sp ♂ / Type / det Fraser, 1954 [white label with Fraser’s handwriting] // Betioky [IX. 1949] / P. Clement [white label with handwriting]”. In FRASER (1955): “1 ♂, ♀, Betioky (IX 1949, P. Clément), à l’Institut de Recherche Scientifique de Madagascar”.

Synonymy is marked as white label with Giacomino’s handwriting: “*Syngenes alluaudi* / (Weele, 1909) / syn.: Ábrahám & Giacomino 2014”.

**Type condition.** Good, only the antennae missing, the upper margin of the left forewing is damaged nearby the pterostigma.

*Comment.* According to the original description (FRASER, 1955), the type specimen was preserved in the *Institut de Recherche Scientifique de Madagascar*. It is now preserved in MNHN. The forewing of the type is unspotted. The costal area is completely sub-equally divided with two cell rows. Tibial spurs curve smoothly without inward processus. Male ectoproct is elongated with a tapered apex. It is a new junior synonym of *Syngenes alluaudi* (Van der Weele, 1909). Synonymy is based on the original accurate description (VAN DER WEELE, 1909) and additional examined material from Madagascar published by ÁBRAHÁM & DOBOSZ (2011).

**Distribution of *S. alluaudi*.** – Madagascar.

***Synclisis japonica* (Hagen, 1866)**

*Acanthaclisis japonica* Hagen, 1866: 289.

Syn. *Heoclis sinensis* Navás, 1923: 13 (Odescr), **n. syn.** NAVÁS, 1936 (Morph); STANGE, 2004 (Mon).

**Types of *Heoclis sinensis*** (fig. 10). – Female checked, preserved in MNHN. Lectotype male was designated by Legrand but not published.

**Label information.** – **LECTOTYPE (present designation):** ♂, “Type [white label with red letters] // Museum Paris / Chine orientale / Chen-Kia-Tchouanc / J. de Mecquenem, 1913 [white label] // *Heoclis / sinensis* Nav. [with Navás’s handwriting] / Navás S.J. det. [white label] // Lectotype [red label with capital printed black letters] // *Heoclis sinensis* / Navás, 1923 / Lectotype / J. Legrand dét. 1992 [white label with Legrand’s handwriting]”. In NAVÁS (1923): “Patria. Ita schedula typi “Chine orientale”. Chen-Chia-Tchoueng, P. de Mecquenem, 1913 (Mus. Paris)”.

Synonymy is marked with a white label: “*Synclisis japonica* / (Hagen, 1866) / syn.: Ábrahám / & Giacomino 2014”.

**Type condition.** Poor, left antenna and left hind wing missing, costal area of forewing torn.

*Comment.* NAVÁS (1936) provided a description of the male. The type location “Chine orientale” was incorrectly translated by STANGE (2004) as “West China”. It is a new junior synonym of *Synclisis japonica* (Hagen, 1866). According to OSWALD (2015) the name was also incorrectly cited



as “*Acanthaclisis japonica* sp. nov.” by McLACHLAN (1875) and later the use of the name was widespread in the literature (e.g. KUWAYAMA, 1962; STANGE, 2004; KRIVOKHATSKY, 2011). Synonymy is based on the original description (HAGEN, 1866) and additional examined material from Japan.

**Distribution of *S. japonica*.** – East China (Beijing, Hubei, Liaoning, Zhejiang, Henan, Shaanxi), Korea, Japan, Far East Russia.



**Fig. 7-9.** – Myrmeleontidae, types. – 7, *Palpares sinicus* Yang, 1986, holotype, ♀. – 8, *Acanthaclisis curvispura* Krivokhatsky, 1990, holotype, ♂. – 9, *Synclisis cryptica* Fraser, 1955, lectotype, ♂.

***Centroclisis cervina* (Gerstaecker, 1863)**

*Acanthaclisis cervina* Gerstaecker, 1863: 176.

Syn. *Centroclisis terribilis* Prost, 1998: 169 (Odescr), **n. syn.** STANGE, 2004 (Mon).

**Type of *C. terribilis*.** – Paratype female (fig. 11) was checked in MNHN, since the holotype could not be found in the collection.

**Label information.** “Paratype [red label with capital black letters] // *Centroclisis / terribilis* / Prost det. 1997 [white label with Prost’s handwriting] // Ifam 1964 / R. P. Terrible [white label with handwriting] // Bachikélé / Tchad / 4-VIII-1964 [white label with handwriting] // Muséum Paris / leg Ifan / 1997 [white label]”. In PROST (1998): “Paratype 1 ♀, Bachikélé, Tchad, 4-VIII-1964, R.P. Terrible, in MNHN”.

Synonymy is marked as a white label with Giacomino’s handwriting: “*Centroclisis cervina* / (Gerstaecker, 1863) / syn.: Ábrahám / & Giacomino 2014”.

**Type condition.** Excellent.

**Comment.** It is a new junior synonym of *Centroclisis cervina* (Gerstaecker, 1863). Synonymy is based on the original description (GERSTAECKER, 1863) and additional examined material from the Arabian Peninsula.

**Distribution of *C. cervina*.** – It is widespread in the Saharan zone from western Africa to the Arabian Peninsula.

**Tribe *Myrmecaelurini* Esben-Petersen, 1918*****Iranoleon afghanus* (Kimmins, 1950)**

*Myrmecaelurus afghanus* Kimmins, 1950: 239 (Odescr). HÖLZEL, 1972 (Mon); STANGE, 2004 (Mon).

*Iranoleon afghanus* (Kimmins). KRIVOKHATSKY, 1998 (Comb).

Syn. *Iranoleon electus* Hölzel, 1968: 10 (Odescr), **n. syn.** HÖLZEL, 1972 (Mon); KRIVOKHATSKY, 1998 (Mon); STANGE, 2004 (Mon).

**Type of *M. afghanus*.** – Holotype female (fig. 12) was checked, preserved in ZMC.

**Label information.** “Type [round white label with red edge] // zmuc 00026629 [white label] // 3. Danske Exp. til / Centralasien / Pirzada 3.6.1948 / Afghanistan N. Haarløv / St. 48 [white label] // *Myrmecaelurus / afghanus* / ♀ / D.E. Kimmins det. 1950 / Type [white label with Kimmins’s handwriting] // *Iranoleon / afghanus* Kimm. [with Krivokhatsky’s handwriting] / Krivokhatsky det. 1990 [white label] // The abdomen was / under the label / V. Krivokhatsky [white label with Krivokhatsky’s handwriting]”. In KIMMINS (1950): “Afghanistan: Pirzada, 3.4.1948, 1 ♀”.

**Type condition.** Very good, abdomen is preserved in a plastic vial.

**Comment.** Earlier, *Myrmecaelurus afghanus* Kimmins, 1950, was transferred to *Iranoleon* Hölzel, 1968, by KRIVOKHATSKY (1998). *Iranoleon electus* Hölzel, 1968, is a new junior synonym of *Myrmecaelurus afghanus* Kimmins, 1950. Synonymy is based on the original accurate description (HÖLZEL, 1968). Both type specimens of *Iranoleon afghanus* and *Iranoleon electus* were recorded from Afghanistan. HÖLZEL (1972) referred to *Myrmecaelurus afghanus* as an endemic species. GHOSH & SEN (1977) incorrectly cited the type locality of *Myrmecaelurus afghanus* from NW India and CHANDRA & SHARMA (2010) also listed it, so the distribution data from India requires checking.

**Distribution of *I. afghanus*.** – Iran (in coll. SCM, Kaposvár), Afghanistan.

***Aspoeckiana vaillanti* (Navás, 1920), **n. comb.****

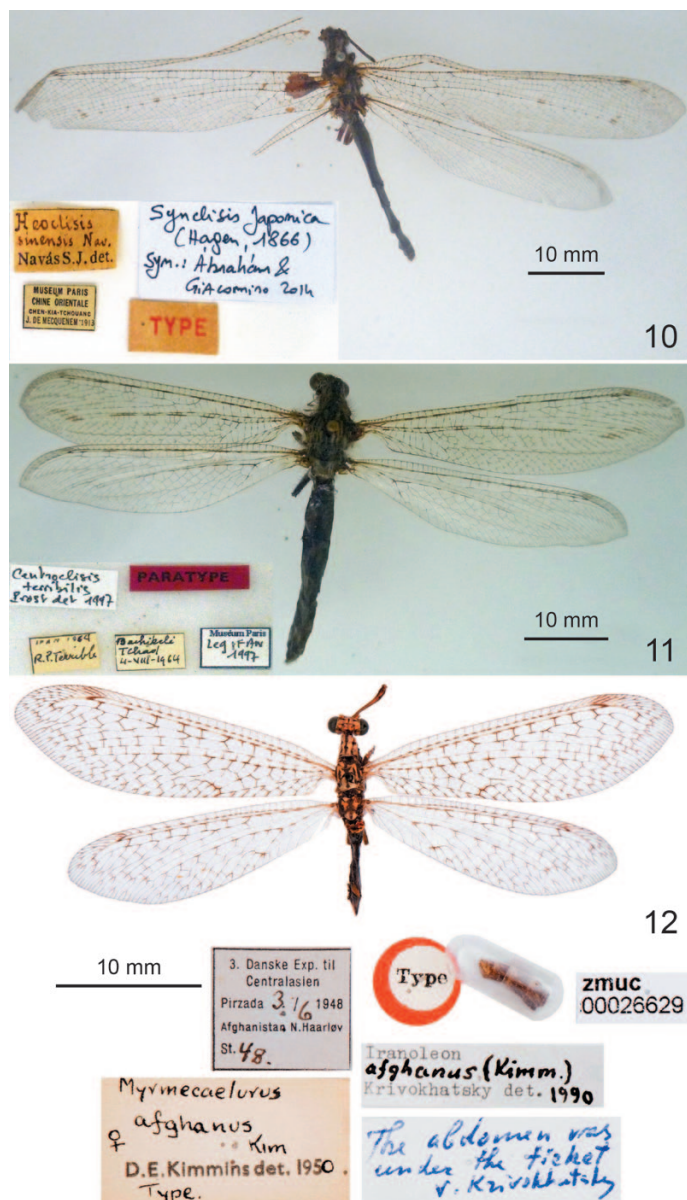
*Myrmecaelurus vaillanti* Navás, 1920: 192 (Odescr).

Syn. *Aspoeckiana venusta* Hölzel, 1970a: 252 (Odescr); HÖLZEL, 1970b (Dist); KRIVOKHATSKY *et al.*, 1996 (Dist); STANGE, 2004 (Comb).

**Type of *M. vaillanti*.** – Type male (fig. 13) checked, preserved in MNHN.

**Label information.** LECTOTYPE (**present designation**): ♂, “Type [white label with red letters] // Museum Paris / Kachgarie / Koutchar / Dr L. Vaillant 1909 [white label] // *Myrmecaelurus* / *vaillanti* ♂ Nav. [with Navás’s handwriting] / Navás S.J. det. [white label] // Lectotype [red label with capital printed black letters] // *Myrmecaelurus* / *vaillanti* / Navás, 1920 / Lectotype / J. Legrand dét. 1992 [white label with Legrand’s handwriting]. In NAVÁS (1920): “Patrie. Asie: Kachgarie, Koutchar, Dr. L. Vaillant, 1909 (Mus. de Paris)”.

**Type condition.** Good.



**Fig. 10-12.** – Myrmeleontidae, types. – 10, *Heoclisis sinensis* Navás, 1923, lectotype, ♂. – 11, *Centroclisis terribilis* Prost, 1998, paratype, ♀. – 12, *Iranoleon afghanus* (Kimmins, 1950), holotype, ♀.

*Comment.* Lectotype was designated by Legrand but it was not published. It is a little known but valid species. We have not found any further information since the original description (NAVÁS, 1920). HÖLZEL (1970a, b) studied the Mongolian neuropteran fauna and described several new antlion species including *Aspoeckiana venusta* Hölzel, 1970, which is a new junior synonym of *Myrmecaelurus vaillanti* Navás, 1920. Later, KRIVOKHATSKY *et al.* (1996) published a map on the Mongolian distribution of *Aspoeckiana venusta*. Based on this map, the type locality of *Myrmecaelurus vaillanti* in West China (Kasgar) is not far from the known Mongolian recording sites.

Although STANGE (2004) combined all *Nohoveus* and *Aspoeckiana* species with *Myrmecaelurus*, we do not agree with this combination since these genera are well characterized by genital morphology (ASPÖCK *et al.*, 2001).

**Distribution of *A. vaillanti*.** – Mongolia, China (Xinjiang).

### *Nohoveus implexus* (Walker, 1853)

*Myrmeleon implexus* Walker, 1853: 376.

*Nohoveus vanharteri* Ábrahám, 2012: 58 (Odescr), **n. syn.**

**Type of *N. vanharteri*.** – Holotype and paratypes are deposited in the entomological collection of Somogy County Museum, Kaposvár; 1 paratype female is deposited in the entomological collection of Upper Silesian Museum, Bytom.

**Label information.** “Oman Al Batinak Region / Nakl 264 m / 23°25,1519’N; 57°49,246’E / 11.10.2009 / leg: Ilniczky S., Simonyi S [white paper]”. In ÁBRAHÁM (2012): “Holotype male: Oman Al Batinak Region, Nakl 264 m, 23°25,1519’N; 57°49,246’E, 11.10.2009, leg: Ilniczky S., Simonyi S.”.

**Type condition.** Excellent.

*Comment.* *Nohoveus vanharteri* is a new junior synonym of *Nohoveus implexus* (Walker, 1853). When the second author described the new species he only checked the Myrmecaelurini fauna of Middle and West Asia, in the Palearctic realm. At first, the species was described from India but it is also known from the Arabian Peninsula. The diagnosis of the new species was based only on the original description written by WALKER (1853); GHOSH (1981) also gave some additional characters and schematic figures on the morphology of *Nohoveus implexus* which did not provide sufficient information for the author to distinguish the two species correctly. After studying the Indian fauna (Oriental) and checking the type preserved in BMNH (fig. 14), the second author realized the new junior synonym status.

**Distribution of *N. implexus*.** – India, Pakistan, Oman.

### Tribe Nesoleontini Markl, 1954

#### *Cueta kurzi* (Navás, 1912)

*Nesoleon kurzi* Navás, 1912b: 92 (Odescr).

*Cueta kurzi* (Navás); STANGE, 2004 (Comb, Mon).

Syn. *Nesoleon sauteri* Esben-Petersen, 1913: 222, **n. syn.**

*Cueta sauteri* (Esben-Petersen); STANGE 2004 (Comb).

*Cueta duplicata* Navás, 1914; ESBEN-PETERSEN 1920 (Syn).

*Cueta plicata* Navás, 1914; ESBEN-PETERSEN 1920 (Syn).

*Cueta hugeli* Navás, 1914; ESBEN-PETERSEN 1920 (Syn).

*Cueta hugeli* var. *inciva* Banks, 1939; GHOSH & SEN 1977 (Chlist); STANGE 2004 (Syn).

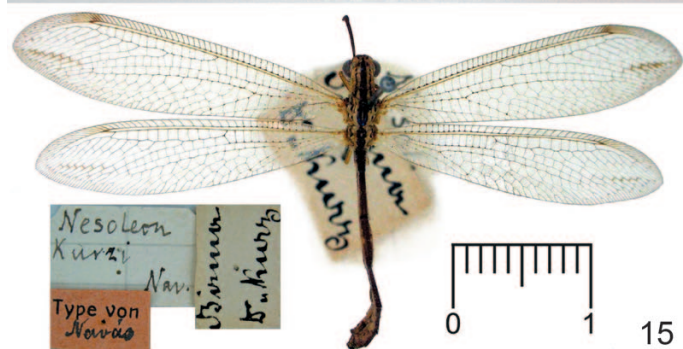
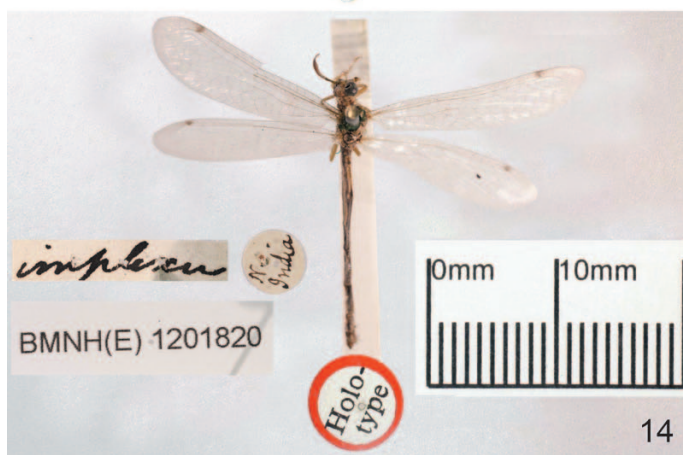
**Type of *N. kurzi*.** – Female (fig. 15) checked, preserved in ZSM. LECTOTYPE (**present designation**): ♀, “Lectotype female / *Nesoleon kurzi* / Navás, 1912 / design.: Ábrahám & Giacomino 2014 [red label]”.



*Label information.* Birma / Dr. Kurz [white handwritten label] // *Nesoleon* / *kurzi* / Nav. [white label with Navás's handwriting] // Type von / Navás [red label with handwriting]". In NAVÁS (1912b): Birma, Dr. Kurz leg.

*Type condition.* Very good, right antenna missing.

*Comment.* No further information is available on the taxon since the original description. NAVÁS (1914b) also described three other *Cueta* species from the Oriental realm, *Cueta duplicata* Navás, 1914, and *Cueta plicata* Navás, 1914, from Vietnam, and *Cueta hugeli* Navás, 1914,



**Fig. 13-15.** – Myrmeleontidae, types. – 13, *Aspoeckiana vaillanti* (Navás, 1920), lectotype, ♂. – 14, *Nohoveus implexus* (Walker, 1853), holotype. – 15, *Cueta kurzi* (Navás, 1912), lectotype, ♀.

from Eastern India (?), which proved to be synonyms of *Cueta sauteri* (Esben-Petersen, 1913) according to ESSEN-PETERSEN (1920), KRIVOKHATSKY (1997) and STANGE (2004). Later, *Cueta hugeli* var. *inciva* Banks, 1939 was also mentioned by BANKS (1939) and GHOSH & SEN (1977) from South India. The taxon was listed as a synonym by KRIVOKHATSKY (1997) and STANGE (2004).

Moreover, *Cueta sauteri* (Esben-Petersen, 1913) is a new junior synonym of *Cueta kurzi* (Navás, 1912).

**Distribution of *C. kurzi*.** – India, Myanmar, SE China, Taiwan, Vietnam.

### *Myrmeleon alcestris* Banks, 1911

*Myrmeleon alcestris* Banks, 1911: 10.

Syn. *Nesoleon lunatus* Navás, 1912a: 91 (Odescr), **n. syn.**

*Cueta lunata* (Navás); ESSEN-PETERSEN, 1928 (Dist); STANGE, 2004 (Comb, Mon).

Syn. *Myrmeleon sciapterus* Navás, 1914: 93; STANGE, 2004 (Syn).

Syn. *Bordus temeratus* Navás, 1936: 166; STANGE, 2004 (Syn).

**Type of *N. lunatus*.** – Female (fig. 16) checked, preserved in ZSM. **LECTOTYPE (present designation):** ♀, “Lectotype female / *Nesoleon lunatus* / Navás, 1912 / design.: Ábrahám & Giacomino 2014 [red label]”.

**Label information:** “Swakopmund / Deutsch S.W. Afr.[ika] / Dr. Bürkel [white handwritten label] // *Nesoleon / lunatus* / Nav. [white label with Navás’s handwriting] // Type von / Navás [red handwritten label]. In NAVÁS (1912a): “Swakopmund, Deutsch.-S.W.-Afrika. Dr. Bürkel”.

**Type condition.** Excellent.

**Comment.** *Nesoleon lunatus* Navás, 1912, is a new junior synonym of *Myrmeleon alcestris* Banks, 1911, based on original description of BANKS (1911). STANGE (2004) also listed two further synonyms of *Myrmeleon alcestris* Banks, 1911, namely *Myrmeleon sciapterus* Navás, 1914, *Bordus temeratus* Navás, 1936. ESSEN-PETERSEN (1928) did not examine the type specimen of *Cueta lunata* (Navás, 1912).

**Distribution of *M. alcestris*.** – Southern Africa: Namibia, South Africa, Zambia.



Fig. 16. – *Nesoleon lunatus* Navás, 1912, lectotype, ♀.

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